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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/762,672	01/21/2004	Stephen N. Sanderson	70226-9101	5156
7590	08/22/2005		EXAMINER	
Stephen N. Sanderson 3560 San Pedro Dr. NE Albuquerque, NM 87110			RUSSELL, CHRISTINA MARIE	
			ART UNIT	PAPER NUMBER
			2837	

DATE MAILED: 08/22/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/762,672

Applicant(s)

SANDERSON, STEPHEN N.

Examiner

Christina Russell

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-11 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |  |
|--|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)            |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date ____ | 6) <input type="checkbox"/> Other: ____  |

## **DETAILED ACTION**

### ***Drawings***

1. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference character(s) not mentioned in the description:
2. Figure 3B is not discussed in the detailed description portion of the specifications.
3. Corrected drawing sheets in compliance with 37 CFR 1.121(d), or amendment to the specification to add the reference character(s) in the description in compliance with 37 CFR 1.121(b) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

### ***Specification***

On page 2, line 5 of the specifications there is a minor informality. The US patent number 5,567,902 is repeated. Please amend.

***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1-6, 8, 10 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over your previous US patent Sanderson (4,790,230) in view of the US patent to Brulí (4,818,132).

6. In your previous US patent, you teach all the claimed elements, as disclosed in claims 1-6, 8, 10 and 11 except for the use of an insertable protector for the protection of the sensors from ambient light. In this prior art, with respect to claim 1-3 of the present invention, you teach of a system for a keyboard like instrument comprising an insertable sensor strip that is placed atop both the black and white keys to sense their movement and sense and transmit other keynote expressions such as depression and velocity. It is also taught that at least one sensor on the strip is paired to at least one key. It also taught that this system is placed at the back of the keys, hidden from view, where the edge of the keys would meet the edge of the fallboard in the "up" position on a standard acoustic piano (see Figure 1, column 1, lines 18-20, column 3, line 60-column 4, line 2, column 4, lines 11-16, 50-51 and 66-68, column 5, lines 39-42, column 7, lines 44-48, column 8, lines 42-44 and column 9, lines 12-15). As for claims 4 and 5, it is taught in the previous patent that the sensors comprise an energy or voltage

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contact that produces an electrical signal along with an adjacent optical emitter and receiver that converts the energy provided by the keys into said electrical signal (see claim 1, lines 25-34, column 5, lines 43-49, column 7, lines 26-28, column 8, line 62-column 9, line 8, column 9, lines 58-60 and column 11, lines 17-26). As for claims 6, 8, 10 and 11, you have previously taught, referring to Figure 2, of a strip or keyboard mold connected to the couplers that sense the movement and provide energy and are furthermore connected to said sensing strip. This mold and sensing strip have both an emitter and receiver coupled together to convert and transmit a field strength, or displacement current, to a corresponding electrical signal or voltage, and comprises multiple optical couplers and electrical contact points that switch on or off in relation to key depressions (see column 5, lines 3-17, 29-32 and 43-49, and Figures 4 and 5). As stated above all that is not taught is the use of a protector strip to protect the sensors from ambient light. Brull teaches such a protector. Simply stated in the abstract of Brull, he teaches the use of a similar type sensor but with an addition sweep device to protect the sensors from ambient light. It would have been obvious to one of ordinary skill in the art, at the time of the invention, to incorporate the sweep device of Brull into the sensing strip in the previous patent. It would have been obvious to add a protective cover to your already patented sensor strip, comprised of similar sensors as stated by Brull, since protection from such things as sunlight and overhead room lights, is a common factor taken into consideration when designing optical sensors.

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7. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over your previous US patent, Sanderson, in view of Brull as applied to claim 6 above, and further in view of the US patent to Lee (6,472,589).

8. As stated above, Sanderson and Brull teach all of the above claimed elements of claim 6, as dependent upon claim 2 and further claim 1, except for the mold and sensing strip comprising a magnetically coupled emitter and receiver to convert magnetic fields to electrical signal. Lee teaches such a magnetic system (see column 5, lines 6-15). It would have been obvious to one of ordinary skill in the art, at the time of the invention, to mount such a magnetic system of Lee at the back of the keys, positioned in relation to the sensor (see column 1, lines 28-31), to allow for better measure and response times to the deviating velocities, and additional keyboard information.

9. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over your previous US patent, Sanderson, in view of Brull as applied to claim 6 above, and further in view of Fields (5,237,125).

10. As stated above, Sanderson and Brull teach all of the above claimed elements of claim 6, as dependent upon claim 2 and further claim 1, except for the mold comprising a piezo-electric element to convert mechanical energy to either a negative or positive electrical signal proportional to the displacement of the keys. Fields teaches such a piezo-electric element (see column 2, lines 34-40, and column 4, lines 30-35). It would have been obvious to one of ordinary skill in the art, at the time of the invention, to further advance the prior sensors with an additional sensitivity device that consists of only a thin, flexible film that can be incorporated into the already applied sensors placed

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over the keys. These piezo-electric devices of Fields comprise similar sensors as already stated and further detect velocity and key depressions just as the sensors of your previous invention.

### ***Conclusion***

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. US patent publication to Hayakawa (US 2001/0045151 A1) and US patent to Yasutoshi et al. (6,037,534).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christina Russell whose telephone number is 571-272-4350. The examiner can normally be reached on Mon-Fri, 8-4.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Martin can be reached on 571-272-2107. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

CR  
08/16/2005



DAVID MARTIN  
SUPERVISORY PATENT EXAMINER  
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